тяжкий і прогресуючий перебіг, що супроводжується зниженням ліпідоутворюючої і секретної функції печінки.

Ключові слова: механічна жовтяниця, печінкова дисфункція, ліпідний обмін.

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accompanied by decrease of lipid-forming and secretory hepatic function was observed under biliary sepsis.

Key words: mechanical jaundice, hepatic dysfunction, lipid metabolism.

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FEATURE OF CELLULAR COMPOSITION OF THE GUMS IN GENERALIZED PERIODONTITIS

An article presents the results of a research of the cellular composition of epithelial and connective tissue fractions of periodontal pockets in patients with chronic generalized periodontitis. It was established that due to prolonged presence of inflammation in the periodontium, a violation of epithelial keratinization occurs, that is characterized by the absence of all epithelial cells and the change in percentage of cell avanguard. Three types of smears were determined, according to a number of hematogenous cells prevalence, that is in comparison with a history of patients, regarding the frequency of exacerbations, made it possible to formulate criteria for prognostic clinical course of generalized periodontitis. The above mentioned, makes it possible to assert that cellular and humoral immunity of periodontal pockets are closely related together, primarily by polymorphonuclear leukocytes and macrophages. These cells play a key role in the inflammatory response and protecting the body from external influence factors including bacteria and their toxins.

Key words: periodon, epitheliocytes, generalized periodontitis, leukocytes.

This scientific research is a fragment SRWs "The role of inflammatory diseases of the teeth-jawbone system in the development of diseases associated with systemic inflammation", state registration № 0112U0011538, and "Comprehensive study of genetically determined characteristics of NFkβ-mediated signal transduction that determines the development of chronic systemic inflammation in patients with metabolic syndrome and type 2 diabetes mellitus", state registration № 0111U001774.

The emergence and development of inflammatory periodontal disease in young people is an urgent problem of current periodontology, and requires a development of new methods that would give an opportunity not only to diagnose but also prognosis of periodontitis course in a given patients contingent [18, 19, 24].

These changes in the future without timely intervention will lead to more serious processes in periodontal tissues, premature tooth loss, changes in temporal mandibular joints. Results of predecessor's research indicate a role of periodontal pathological processes in the development of systemic inflammation [3, 5, 9].

Given the above facts and considering the mucous membrane of the gums, as part of the concept "periodontium" and it is strategically important area under the conditions of inflammatory process and organ that is capable to an immune response [10], due to these a great interest arise for a characteristic of cellular structure of periodontal pockets of patients with generalized periodontitis, changes in cytological composition of the gingival epithelium and reaction of the epithelial component of other anatomical sites for the presence of foci of chronic intoxication and chronic infection in periodontal tissues [12, 21, 22].

The aim of research is to determine cytological criteria for prognosis of clinical course of generalized periodontitis.

Materials and methods. Cytological examination of gums and buccal epithelium was performed by a method of taking epithelial cells in women of the first trimester of pregnancy by rasping, then transferring it to a sterile glass plate, drying of smears for 2-3 minutes with open access of air, with a followed coloring of obtained material by the method of Papengeym, with followed microscopic and morphological analysis of cytological smears based on maturation of cells of stratified squamous epithelium in norm and during changes in periodontal tissues.

Results of research and it's discussion. Taken into account that it is a little invasive and highly informative method of cytological study we performed a detailed morphological analysis of the cellular composition of periodontal pockets. Cytograms were stained by Gram, Romanovsky and Himza with further study in three fields of vision. Cellular structure periodontal pockets is presented by haematogenic and epithelial cells.

Among epithelial cells is noteworthy appearance of basal cells in cytogramms, which normally are absent. They have a prismatic shape, oval nucleus, nucleolus shifted to the periphery and are characterized by sharp basophilic cytoplasm.

Nuclear-cytoplasmic ratio is high, shifted towards the nucleus (NCR) and is 0,49±0,002 which allow to include the cell into the first stage of differentiation. Percentage of basal epithelial cells in cytogramms is 14,2±0,23 to 100 cells. The appearance of basal cells leads to conclusion about the deep epithelial affection by inflammation and characterizes the severity of periodontitis in patients of examined contingent of patients. A signs of cytopathology were visible in cells.

A characteristic feature of cytogramms of examined patients is absence of parabasal cells, as a result, the second stage of cells' differentiation, that are characterized by reduced NCR due to increasing of the cytoplasm.

Characteristic feature of cytogramms of periodontal pockets content is a presence of intermediate cells with polygonal shape, optically bright cytoplasm, eccentrically offset of oval vesicular nucleus. NCR are decreases

toward the nucleus and is 0,34±0,001, which makes it possible to refer these cells to the third level of differentiation. It should be noted that intermediate cells that are prevalent in smears of patients with intact gums [1, 2] and is an indicator of maturation and differentiation of epithelial cells are found in smears of listed patients in a reduced quantities and are 34,9±0,28 to 100 cells. The above indicates a disturbance of the maturation of the epithelial layer of the gums as a result of inflammation.

Superficial cells in cytogramms of periodontal pockets were visualized of two types, correspondence to which is determined by the state of nucleus.

The first type of superficial cells is represented by epithelial cells whose dimensions are slightly larger than the intermediate, with clearly contoured nucleus of normal size, located in the center of the cell. NCR are shifted toward the cytoplasm and is 0,25±0,001, which makes it possible to refer these cells to the fourth level of differentiation. Percentage content of 100 cells in cytograms of examined patients was 20,1±0,26.

The second type of superficial cells is represented by superficial epithelial cells whose dimensions are similar to the first one, nucleus is pyknotic, characterized by clear contours, it is often found colored vacuoles, kariolisis and fragmentation followed by elimination from cytoplasm. NCR are shifted toward the cytoplasm and is 0,1±0,001, which makes it possible to refer these cells to the fourth level of differentiation. Percentage content of 100 cells in cytograms of examined people was 30,5±0,29.

In order to prognose an inflammation in periodontal tissues we have done investigation of cytograms of periodontal pockets during exacerbation of periodontitis.

Studies show that epithelial cell composition remains constant, but emphasizes change of the quantitive proportion of epithelial cells.

Cells with (NCR) 0,5±0,002 corresponding to basal epithelial cells make up 23,8±0,31of the 100 cells. Parabasal cells similar to the cytograms of chronic course are absent. Number of intermediate cells (NCR) which is 0,35±0,001, remains constant and is 32,8±0,21. While the quantitative composition of cell fractions of the surface layer with NCR 0, 25±0,001 and NCR 0,1±0,001 is changed in the direction of increasing of the superficial cells number of centric located nucleus and is 37,7±0,23, but for cells with piknotic nucleus is 6,7±0,16.

Table 1

Evolution of the average values of percentage of different classes of epithelial cells in the cellular composition of periodontal pockets, depending on the clinical course (%)

Clinical course	Basal cells	Intermediate cells	Surfical cells	
			Piknotic nucleus	Central located nucleus
Chronic	14,2±0,23	34,9±0,28	20,1±0,26	30,5±0,29
Pointed	23,8±0,31	32,8±0,21	37,7±0,23	6,7±0,16

Above listed results make it possible to assert that under prolonged inflammation in the periodontal tissues, a violation of keratinization occurs, characterized by the absence of all epithelial cells and the percentage change in the ratio of cell avanguard.

Our results have found histological confirmation on the stage of histological study of structure of periodontal pockets.

Among a number of hematogenous cells in periodontal pockets in cytograms content is determined by a large number of neutrophils at different stages of phagocytosis, with clearly hypersegmented nucleus without septum between segments. It should be noted that this type of cell was found in cytograms irrespective of generalized periodontitis course. But functional status was changed.

Thus, under conditions of chronic course, a neutrophilic granulocytes form cell clusters. By the way, contours of plasmolemma are clearly visualized with mostly rounded and preserved nuclei segmentation.

This type of smear under conditions of chronic clinical course is rognostic criteria of high exacerbation rate. In a quite large number macrophages are visualized, which are elongated, optically dense nucleus. In the cytoplasm of these cells a well-developed lysosomal appliance is localized, a moderately developed as other organelles.

Their quantitative structure explains the constant need to phagocytosis of necrotic tissue components and intercellular substances and microorganisms in periodontal foci of inflammation. Besides this type of cells involved in the induction of immune responses through a process of synthesis and antigen presentation to lymphocytes, regulate the activity of other cell types, including fibroblasts. This type of smear under conditions of chronic clinical course suggests a relatively lower incidence of exacerbation.

Along with functionally active macrophages in cytograms, a lysed cells are seen. Contours of plazmolema are violated. Besides macrophage cell system an erythrocytes with Gram staining are visualized, they have appearance of doubly concaved discs that lost nucleus in the process of phylogenesis. Their cytoplasm is poorly stained and is characterized by oxiphilic colour . It is noted that the intense microbial occupancy, among which complex systems of rods, cocci and fungi of the genus Candida, spirills are visualised. Under the conditions of inflammation progression a replacement of opportunistic strains to other more pathogenic and non pathogenic bacteria are happened, with a prominent association to periodontal diseases.

Scientific research of predecessors [4, 7, 15, 16, 20] indicates that parodonto-patohenic micro-flora is represented by (Actinobacillus actinomycetemcomitans, Bacteroides forsythus, Pervotella intermedia, Porphyromonas gingivalis, Treponema denticola) that are revealed by polymerase chain reaction, Chlamidia

(Chlamidia pneumonie, Hlamidia trashomatis), Helicobacter pylori, viruses (Virus snfluenza, Measles virus, Cytomegalovirus, Herpes viruses), Bordetella pertussis, Bacillus antracis – that initiate and is the starting point not only in the pathogenesis of periodontal disease, but also atherosclerosis, stroke, insult and other diseases.

Pathogenic bacteria can cause tissue damage due to two reasons: the actual bacterial and toxic effects, and as periodontal tissues response to bacterial aggression. Reverse reaction of periodontal tissues to destruction starts a cascade of cellular responses, primarily polymorphonuclear leukocytes, macrophages, fibroblasts that werer exposed the destructive influence of microbial agents.

Occurrence of monocytes, cells with oval kidney-liked nonsegmented large nucleus, rich in chromatin in a number of cytograms attracts attention. Cytoplasm is of relatively large size, contains a well-developed lysosomal components. The emergrnce of these cells in smears indicates a functional activity of mesenchyma and characterizes a weak tendency to exacerbation of chronic process.

In all cytograms under conditions of chronic periodontitis course were visible lymphocytes that under Gram staining has great spherical nucleus, located mainly in the center of cell and occupy almost all cell space. The nucleus contains a large amount of heterochromatin, which is diffusely localized.

In order of cytological identity we investigated cytological properties of lymphocytes of periodontal pockets using preparations stained by Romanovsky-Himza.

The cytoplasm of lymphocytes is characterized by basophilic properties, painted in light blue color and surrounds the nucleus in a narrow border. The cytoplasm is rendered by light perinuclear area. The presence of lymphocytes in cytograms, justify a received results of complex histological and immune-hystochemical investigations that deals with involvement of immune system and starting chronic process and presence of counteraction between foci of chronic infection of periodontal tissues and systemic diseases of organism. The above leads to conclusion that cellular and humoral immunity of periodontal pockets are closely related, primarily by polymorphonuclear leukocytes and macrophages. These cells play a key role in the inflammatory response and protection of the body from influence of xenogenic factors including bacteria and their toxins.

Our results are confirmed by several studies of predecessors, and show that the penetration of periodontal pathogens leads to formation in periodontal tissue of a highly active complex compounds - cytokines that are able to modify the activity of neutrophils and reduce their specific antibacterial properties [6, 8, 11].

Cytokines not only adversely affect the periodontal tissues, but cause further activation of cells that synthesized them, inhibit tissue repair and process of resynthesis of connective tissue by fibroblasts [13, 14, 15, 23].

Under the conditions of exacerbated clinical course of periodontitis a cellular composition of cytograms is changing and is characterized by a predominance of neutrophilic granulocytes. However, it should be noted that most of them are degenerative changed and visualized, with hyper-segmented nuclei without connections between them, and there is no specific granularity.

Conclusion

1. Neutrophilic granulocytes present in each of the types of smear types, but their functional status and quantitative composition is different.
2. The results of our cytological study confirmed the results of immunohistochemical studies, and show that in generalized periodontitis, an inflammatory cellular elements with disorganized epithelial cells and connective tissue of the gums and periodontium, and bacteria form specific types of infiltration in periodontal tissues.

Prospects for further research in this direction. *Future plans consider the pathogenic mechanisms of inflammatory periodontal diseases through polymorphism nuclear transcription factor NFk B, which controls the expression of immune response genes, apoptosis and cell cycle.*

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Реферати

ХАРАКТЕРИСТИКА КЛЕТОЧНОГО СОСТАВА ДЕСНЫ ПРИ ГЕНЕРАЛИЗОВАННОМ ПАРОДОНТИТЕ

Гасюк Н. В., Єрошенко Г. А.

В статье представлены результаты изучения клеточного состава эпителиальной и гематогенной фракции пародонтальных карманов пациентов из пародонтитом. Определено, что в условиях наличия воспалительного процесса в тканях пародонта происходит нарушение ороговения эпителия, что характеризуется отсутствием всех клеток эпителиального диферона и изменением их процентного соотношения. Выделены три типа мазка, в зависимости от преобладания клеток гематогенного ряда, что в сопоставлении с анамнестическими данными пациентов относительно частоты обострений, позволило сформулировать прогностические критерии клинического течения генерализовантгт пародонтита. Вышеупомянутое дает возможность утверждать, что клеточный и гуморальный иммунитет пародонтальных карманов тесно связаны между собой, прежде всего за счет полиморфноядерных лейкоцитов и макрофагов. Эти клетки играют ведущую роль в воспалительных реакциях и защите организма от воздействия чужеродных факторов, включая бактерии и их токсины.

Ключевые слова: пародонт, клетки, эпителий, пародонтит, лейкоциты.

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ХАРАКТЕРИСТИКА КЛІТИННОГО СКЛАДУ ЯСЕН ПРИ ГЕНЕРАЛІЗОВАНОМУ ПАРОДОНТИТІВ

Гасюк Н. В., Єрошенко Г. А.

В статті наведені результати вивчення клітинного складу епітеліальної та сполучнотканинної фракції пародонтальних кишень пацієнтів, хворих на пародонтит. Встановлено, що за умов наявності тривалого запального процесу в пародонті відбувається порушення зроговіння епітелію, що характеризується відсутністю всіх клітин епітеліального диферону та зміною їх відсоткового співвідношення. Виділено три типи мазка, в залежності від переваги клітин гематогенного ряду, що у співставленні із анамнестичними даними пацієнтів стосовно частоти загострень, дало можливість сформулювати прогностичні критерії клінічного перебігу генералізованого пародонтиту. Вищезазначене дає можливість стверджувати, що клітинний і гуморальний імунітет пародонтальних кишень тісно пов’язані між собою, насамперед за рахунок поліморфноядерних лейкоцитів та макрофагів. Ці клітини відіграють провідну роль у запальних реакціях і захисті організму від впливу чужорідних факторів, включаючи бактерії та їх токсини.

Ключові слова: пародонт, клітини, епітелій, пародонтит, лейкоцити.

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